

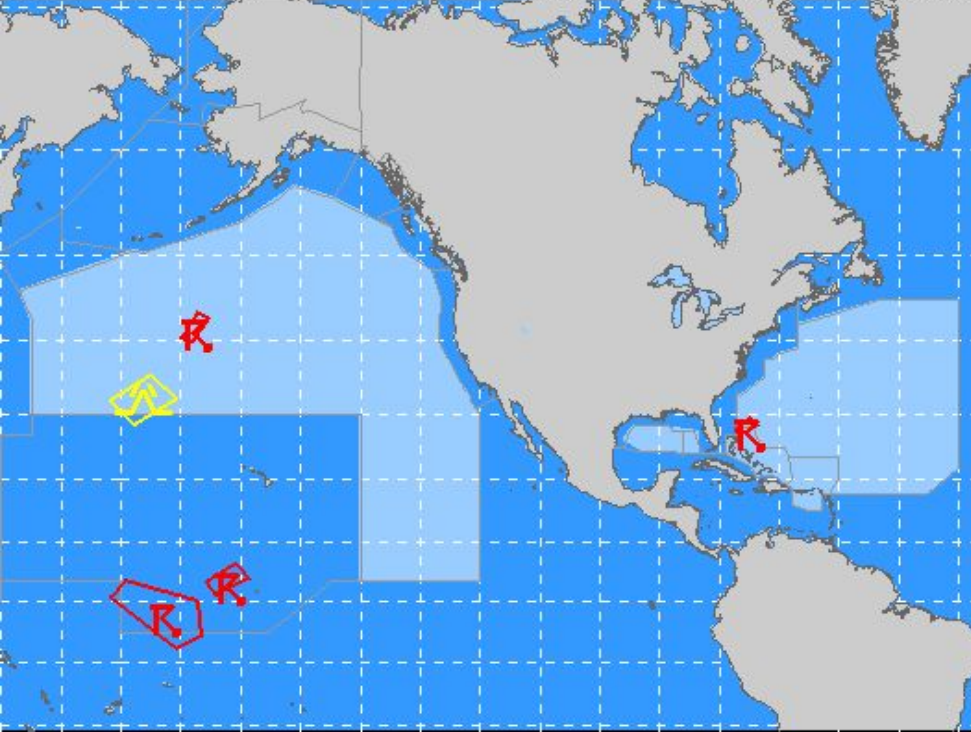
Aviation Weather Center

2015 NCEP Production Suite Review

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AWC area of responsibility

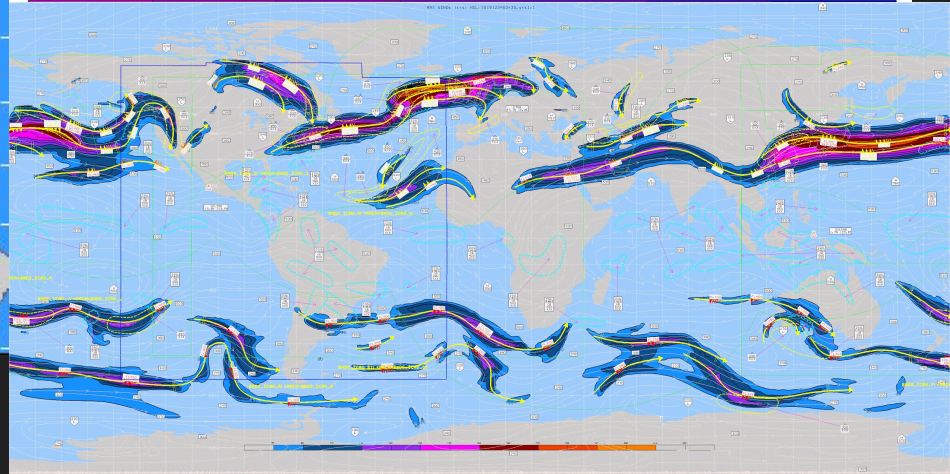
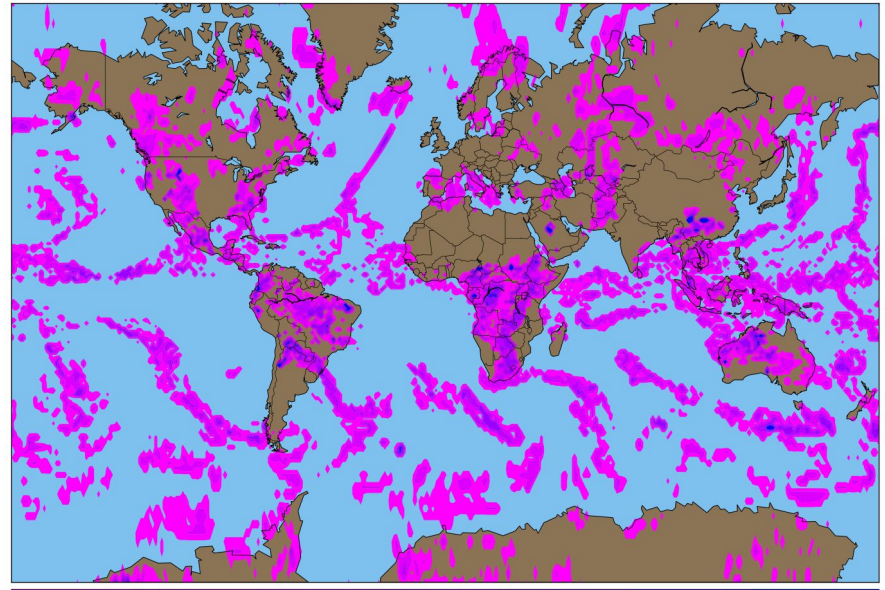
2041 UTC Thu 03 Dec 2015 AWC Oceanic SIGMETs <http://aviationweather.gov>



YFX161 KWBC 150000

Max 600hPa In-Cloud Turbulence [Potential]

24hr Forecast valid 00UTC Sat Nov 16 2013



AWC challenges

FAA regulatory requirements for products
(e.g., SIGMET, Area Forecast)

Model upgrade schedule

- Calibration of derived products needs to be redone each upgrade
 - Does not currently happen for all products
 - Generally not enough time and staff to perform in-depth verification
 - Especially important for products with multiple inputs

AWC challenges

Model upgrade schedule (cont'd)

- More transparency of changes needed earlier in upgrade planning process
 - Key for downstream users like FAA or AWIPS
 - Potentially move to less frequent upgrades on a regular schedule
- Evaluations most often overlap or occur at the same time

AWC challenges

Observations

- Pilot Reports (PIREPs) challenging to verify against
- Aircraft turbulence observations becoming more common (EDR, DEVG)
- FAA requires observations and analyses with little to no latency
 - Safety of flight issue - operators cannot be working with old observations

AWC challenges

GEMPAK

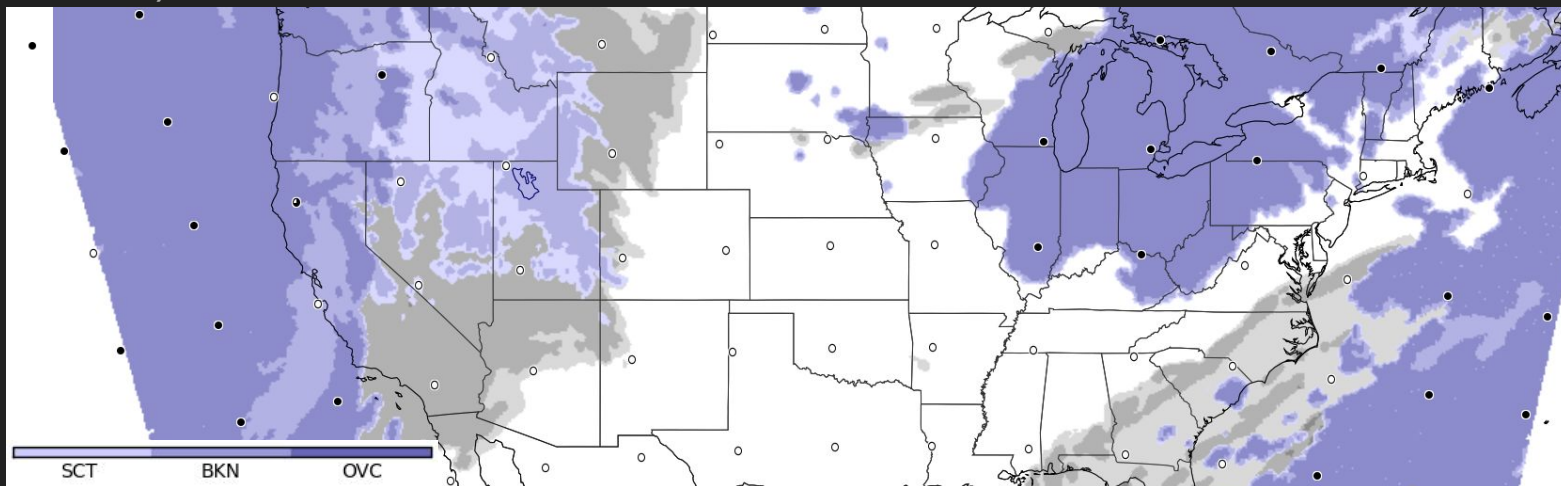
- Pushing to acquire all data from WCOSS in GRIB
 - Legacy algorithms still run on GEMPAK data locally and on WCOSS
- Path to AWIPS for new products is unclear
 - Collaborative Aviation Weather Statement developed in GEMPAK

Cloud & Visibility guidance improvement

Cloud & Visibility (C&V) [analysis and forecast] improvement is major focus
Contributions from AWC, EMC, MDL, & GSD

EMC/MMB & GSD have committed to providing full 3D cloud fraction output

- Will enable full interrogation of multiple simulated cloud layers
- Key for both AWC and WFO operations (Terminal ops, General aviation, & TAFs)

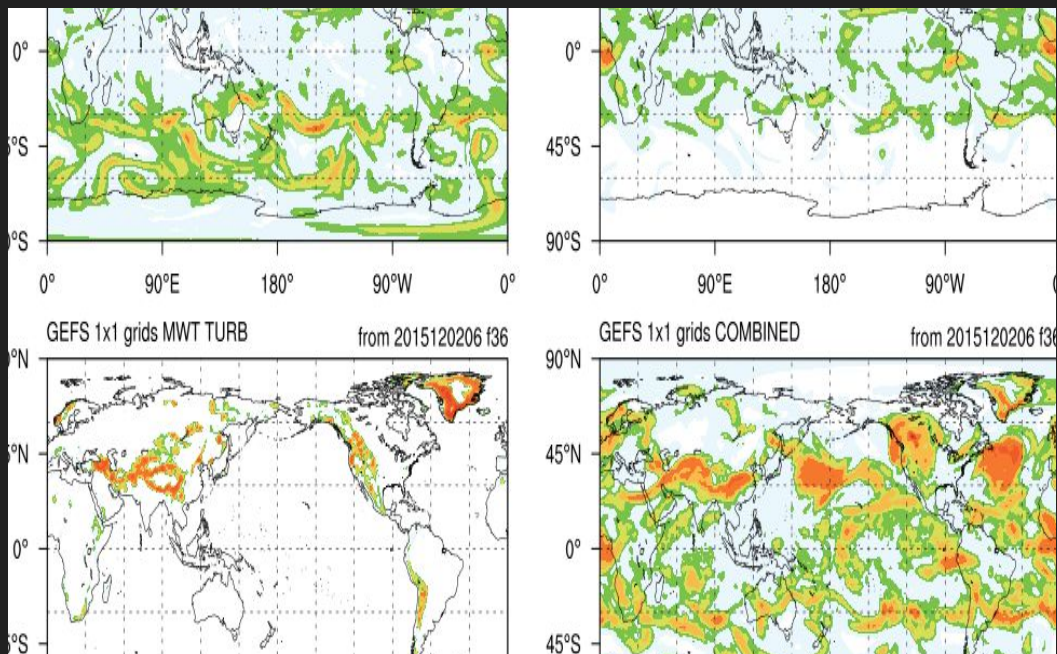


World Area Forecast System (WAFS)

AWC/NWS produce global guidance and forecasts to support WAFS

Moving toward multi-center ensemble (NWS/UKMET)

- En-route guidance for turbulence, icing, and convection
- Leverage GEFS re-forecasts to calibrate based on aircraft obs



Amount of guidance

Asking too much, too little, or the right amount is the wrong question. Focus needs to be on information that can be extracted from model suite

- Post-processing bringing together solutions needs to be variable-specific
 - e.g., Mean cloud base/ceiling heights and visibility are not useful
 - Extremely important for efforts like the national blend of models
- Combination of solutions needs to be verification-based
- Initial NCEP HREF contains unhelpful output (e.g. reflectivity at a grid point)

Amount of guidance

Non-uniform set of parameters available across models

- NCEP Center subset of ~100 parameters has helped for operations
- 3D parameters needed for algorithm and post-processing development
 - These need to be available and accessible, but not necessarily disseminated everywhere

Run length vs. Update frequency

Balance rapidly updating short-range runs with less-frequent long-range forecasts

- TAF period is 30 hours, requiring output to at least F36
- G-AIRMET and primary TAF issuances offset by 3 hours
 - 0530Z, 1130Z, 1730Z, 2330Z - TAF
 - 0245Z, 0845Z, 1445Z, 2045Z - G-AIRMET
- Longer-range runs (of varying length) every 3 or 6 hours
- Vacillation of frequently updating runs is a customer complaint (FAA esp.)

Frequent runs don't need to go out to 24+ hours

Thoughts on production suite evolution

Continued focus on physics improvements along with vertical resolution increases

Increased collaboration between global and mesoscale required

- Topic of GEFS/SREF merger seems to keep coming up
- Science and output need to support current & future customers of all centers
- Physics advances from mesoscale models have to feed back into global
 - e.g., GFS currently does not output cloud base/ceiling heights or cloud ice

Longer term needs

Tools for increased DSS support beyond the TAF from guidance focused on air traffic efficiency and safety.

- Need of CWSUs, AWC, and WFOs (filling in for CWSUs overnight)
- Rapidly updating verification information, as obs available
- Has to integrate with FAA tools